

CLAIMS:

1. (Twice amended) A Peptide containing less than 50 amino acids, comprising at least one dimer of the type XG, wherein X stands for a N^G-mono- or N^G-N^G-dimethylated arginine, asymmetrical dimethyl arginine, or N^G-N^G-dimethylated arginine, symmetrical dimethyl arginine, that is able to react with antibodies and with said methylation being crucial for the reaction between said peptide and said antibodies and wherein said antibodies are present in sera from patients with:

systemic lupus erythematosus, or

infectious, recurrent or chronic mononucleosis or infection, or

certain cancers which are related to infection with Epstein-Barr.

2. (Amended) The peptide according to claim 1 comprising the amino acid sequence of SEQ ID NO 1, SEQ ID NO 2, SEQ ID NO 3, SEQ ID NO 4, SEQ ID NO 5, SEQ ID NO 6, SEQ ID NO 7, SEQ ID NO 8, SEQ ID NO 9, SEQ ID NO 10, SEQ ID NO 11, SEQ ID NO 12, SEQ ID NO 13, SEQ ID NO 14, SEQ ID NO 15 or, an analog of any of SEQ ID NO 1-15, wherein the analog has an amino acid sequence identical to the respective SEQ ID NO except that the analog comprises conservative amino acid substitutions, as defined by Table 4, at one or more positions.

3. (Amended) The peptide of claim 1 fused to a linker molecule.

4. (Canceled)

5. (Amended) A peptide comprising tandem repeats of at least two of any of the peptides of claim 1.

6. (Canceled)

7. (Canceled)

8. (Canceled)

9. (Canceled)

10. (Canceled)

11. (Canceled)

12. (Canceled)

13. (Canceled)

14. (Canceled)

15. (Canceled)

19. (Twice Amended) A diagnostic kit for use in detecting auto-immune diseases selected from the group consisting of:

systemic lupus erythematosus, discoid lupus erythematosus, scleroderma, dermatomyositis, rheumatoid arthritis, Sjögren's syndrome,

said kit comprising at least one peptide according to claim 1, with said peptide optionally bound to a solid support.

20. (Twice Amended) A diagnostic kit according to claim 19, said kit comprising at least one peptide according to claim 1, optionally in combination with native methylated SmD1 or SmD3 and recombinant unmethylated SmD1 or SmD3, wherein said peptides are attached to a solid substrate.

21. (Amended) A diagnostic kit according to claim 19 wherein said solid support is a membrane strip.

22. (Amended) A diagnostic kit according to any of claims 19 wherein at least one peptide reacting with antibodies present in sera from patients with autoimmune diseases other than SLE is not attached to a solid support but is provided in the binding solution to be used as competitor and/or to block other antibodies that are present in sera from patients with autoimmune disease other than SLE, thereby decreasing or eliminating possible cross-reaction and/or aspecific binding.

23. The peptide according to claim 1 wherein X stands for N^G-mono- or N^G-N^G-dimethylated arginine.

24. (New) The peptide according to claim 1 comprising the amino acid sequence of SEQ ID NO 1, SEQ ID NO 2, SEQ ID NO 3, SEQ ID NO 4, SEQ ID NO 5, SEQ ID NO 6, SEQ ID NO 7, SEQ ID NO 8, SEQ ID NO 9, SEQ ID NO 10, SEQ ID NO 11, SEQ ID NO 12, SEQ ID NO 13, SEQ ID NO 14, or SEQ ID NO 15.